



# DAILY NEWS BULLETIN

LEADING HEALTH, POPULATION AND FAMILY WELFARE STORIES OF THE DAY  
Monday 20201102

## National Covid cases

### National Covid cases cross 82 lakh-mark; recovery rate reaches 91.68 per cent (The Tribune: 20201102)

<https://www.tribuneindia.com/news/nation/national-covid-cases-cross-82-lakh-mark-recovery-rate-reaches-91-68-per-cent-164834>

The total coronavirus cases mounted to 82,29,313 with 45,231 people testing positive for the infection in a day, while the death toll climbed to 1,22,607 with 496 new fatalities

National Covid cases cross 82 lakh-mark; recovery rate reaches 91.68 per cent  
The number of active cases of COVID-19 remained below six lakh for the fourth consecutive day. PTI file

India's COVID-19 caseload crossed the 82 lakh-mark, while the number of people who have recuperated from the disease surged to 75.44 lakh pushing the national recovery rate to 91.68 per cent, according to the Union Health Ministry data updated on Monday.

The total coronavirus cases mounted to 82,29,313 with 45,231 people testing positive for the infection in a day, while the death toll climbed to 1,22,607 with 496 new fatalities, the data updated at 8 am showed.

A total of 75,44,798 people have recuperated from COVID-19 so far, taking the national recovery rate to 91.68 per cent, while the case fatality rate was recorded at 1.49 per cent.

The number of active cases of COVID-19 remained below six lakh for the fourth consecutive day.

There are 5,61,908 active coronavirus cases in the country as on date which comprise 6.83 per cent of the total caseload, the data stated.

India's COVID-19 tally had crossed the 20-lakh mark on August 7, 30 lakh on August 23 and 40 lakh on September 5. It went past 50 lakh on September 16, 60 lakh on September 28, 70 lakh on October 11 and crossed 80 lakh on October 29.

According to ICMR, a cumulative total of 11,07,43,103 samples have been tested up to November 1 with 8,55,800 samples being tested on Sunday.

The 496 new fatalities include 113 deaths from Maharashtra, 59 from West Bengal, 51 from Delhi, 49 from Chhattisgarh, 30 from Tamil Nadu and 28 from Kerala.

Out of the 1,22,607 deaths reported so far in the country, 44,024 are from Maharashtra, 11,192 from Karnataka, 11,152 from Tamil Nadu, 7,051 from Uttar Pradesh, 6,900 from West Bengal, 6,706 from Andhra Pradesh, 6,562 from Delhi, 4,214 from Punjab and 3,721 from Gujarat.

The Health Ministry stressed that more than 70 per cent of the deaths occurred due to comorbidities.

"Our figures are being reconciled with the Indian Council of Medical Research," the ministry said on its website, adding that state-wise distribution of figures is subject to further verification and reconciliation. PTI

## **Red blood cells**

### **Coronavirus may block formation of key red blood cells (The Tribune: 20201102)**

<https://www.tribuneindia.com/news/health/coronavirus-may-block-formation-of-key-red-blood-cells-164413>

Loss of erythrocytes might cause damage to the brain neurons, blood vessels, and internals, considering they do not get enough oxygen

SARS-CoV-2, the virus responsible for Covid-19, may not only damage key red blood cells, but also prevent formation of new ones, says a new study.

In the study, published in the journal Archiv EuroMedica, researchers from Far Eastern Federal University (FEFU) in Russia, along with their Japanese colleagues probed how Covid-19's impact on red blood cells called erythrocytes affects patients.

Erythrocytes are red blood cells which are responsible in the body for transport of the iron-rich protein haemoglobin carrying oxygen.

Loss of erythrocytes might cause damage to the brain neurons, blood vessels, and internals, considering they do not get enough oxygen.

In the most severe cases, multiple organ failure can occur, and without his/her own red blood cells, the patient starts to suffocate.

Artificial ventilation does not help in such a scenario as there is no one who transports oxygen within the body.

Effective therapy for such patients is to administer erythrocyte mass and vitamin B12, suggests the research.

Early breakdown of red blood cells is the initial reaction of the body to the SARS-COV-2 virus, which scales up gradually, said the study.

The patient can learn about the pathology by feeling the taste of iron. That occurs because hemoglobin released from erythrocytes in the bloodstream gets in saliva.

According to scientists, everyone who has low haemoglobin is at risk.

These are elderly people, patients with high blood pressure, people with obesity and diabetes mellitus, pregnant women, patients with primary and acquired immunodeficiency, with inhibition of hematopoietic function, HIV- and cancer patients.

“The virus enters the epithelium, where it multiplies, then enters the bloodstream and attacks targets, which can be both the internal epithelium (gastrointestinal tract, lungs, genitourinary system) and erythrocytes,” explained Galina Reva, Professor at Far Eastern Federal University.

“Although most frequently we would see the pathology of the respiratory system, lungs, the virus needs epithelial cells only for reproduction.

“We believe the main target for the virus is the red marrow, where it damages the endothelium, the tissue, which normally regulates the migration of maturing cells into the blood,” Reva said.

Conducting the investigation, the scientists analysed the results of their own studies of lung samples from 79 patients who died from Covid-19. In the control group there were 14 patients who died accidentally.

## **Vitamin B3**

### **Vitamin B3 can protect skin cells from UV-induced skin cancer (The Tribune: 20201102)**

<https://www.tribuneindia.com/news/health/vitamin-b3-can-protect-skin-cells-from-uv-induced-skin-cancer-164341>

NAM enhanced DNA repair, demonstrated by decreased expression of the DNA repair enzyme

Vitamin B3 can protect skin cells from UV-induced skin cancer  
Photo for representation only. Source: iStock.

A form of vitamin B3 can protect skin cells from the effects of ultraviolet (UV) exposure which is the main risk factor for non-melanoma skin cancers, reveals new research.

Researchers in Italy isolated cells (human primary keratinocytes) from the skin of patients with non-melanoma skin cancers.

These cells were treated with three different concentrations of nicotinamide (NAM)—a form of vitamin B3—for 18, 24, and 48 hours and then exposed to UVB.

Results showed that pre-treatment with 25 micron ( $\hat{A}\mu\text{M}$ ) of NAM 24 hours before UV irradiation protected the skin cells from the effects of UV-induced oxidative stress, including DNA damage.

NAM enhanced DNA repair, demonstrated by decreased expression of the DNA repair enzyme OGG1.

Furthermore, it decreased antioxidant expression and blocked local inflammation by showing decreased nitric oxide (NO) release and reactive oxygen species (ROS) production, and reduced iNOS protein expression.

"Our study indicates that increasing the consumption of vitamin B3, which is readily available in the daily diet, will protect the skin from some of the effects of UV exposure, potentially reducing the incidence of non-melanoma skin cancers," said Lara Camillo, a research student from the dermatological unit of AOU Maggiore della Carita, Novara, Italy.

However, the protective effect of vitamin B3 is short-acting, so it should be consumed no later than 24 to 48 hours before sun exposure, she said during the 29th European Academy of Dermatology and Venereology virtual conference.

Non-melanoma skin cancers are the most common malignancies and are increasing worldwide.

The main risk factor is UV radiation exposure, which damages the DNA, increases ROS production, activates local inflammation, and depletes cellular energy, leading to genomic instability and cell death. IANS

## **Ammonia**

### **Ammonia in Delhi water can damage internal organs, warn doctors (The Tribune: 20201102)**

<https://www.tribuneindia.com/news/health/ammonia-in-delhi-water-can-damage-internal-organs-warn-doctors-163938>

Ammonia in Delhi water can damage internal organs, warn doctors  
Delhi Jal Board Vice Chairman Raghav Chadha Raghav Chadha visits Sonia Vihar Water Treatment Plant on Saturday. Tribune photos: Mukesh Aggarwal

As ammonia levels in Delhi's Yamuna shot up above the acceptable levels earlier this week, public health experts have warned that consuming such water can cause damage to the internal organs, brain, lungs, irritation in eyes, cough and anaemia.

The level of ammonia in the water is between 1.7 parts per million and 1.9 parts per million. On Friday, it shot up to around 3.5 parts per million, which is perceived as an extremely high level of toxicity and is not fit for human consumption.

"When ammonia enters the body, it affects the blood cells, causes anaemia, affects the nerves and its conduction, affects the brain which can cause early onset of dementia or Alzheimer's," Jugal Kishore, Head of Community Medicine at Safdarjung Hospital, told IANS.

He added, "Long period of exposure to ammonia is dangerous. When it comes to drinking water, people should not use aluminium utensils in the house and use reverse osmosis (RO) filtration method." Another Delhi-based doctor, Tushar Grover, Medical Director at Vision Eye Centre, said that ammonia in a significant concentration can cause signs of chemical injuries which can cause irritation, discomfort, burning sensation and pain.

P. Venkata Krishnan, a doctor of internal medicine at Paras Hospital, warned: "High ammonia level causes irritation in eyes, cough, lung injury, damage to lungs etc. It can cause damage to the internal organs and result in renal failure and respiratory problems. Such water can also be cleaned by RO technique and not boiling or filtration". He, however, emphasised that dissolved ammonia toxicity is not very common in humans because it requires large amount of ammonia to be delivered over a long period of time.

"The toxic level of ammonia affects aquatic animals and can contaminate the vegetables grown in that area, especially cauliflower which are grown in the open," he said.

Earlier on Saturday, Delhi Jal Board Vice Chairman Raghav Chadha said the utility was working on a war footing to restore normal water supply in Delhi, which was affected due to high levels of ammonia in the Yamuna river.

## Smoking

### Living near green spaces may help quit smoking (The Tribune: 20201102)

<https://www.tribuneindia.com/news/health/living-near-green-spaces-may-help-quit-smoking-163885>

'Being able to see green spaces from your home is associated with reduced cravings for alcohol, cigarettes and unhealthy foods'

Living near green spaces may help quit smoking  
Photo for representation. — iStock

If you want to quit smoking, read on. Researchers have found that living near green spaces or neighbourhoods was linked to lower rates of smoking and higher chances of quitting.

The study, published in the journal 'Social Science and Medicine', demonstrated that access to neighbourhood green space is linked to lower rates of smoking.

"This study is the first to investigate the association between neighbourhood green space and smoking behaviours in England," said study author Leanne Martin from the University of Plymouth in the UK.

"Its findings support the need to protect and invest in natural resources -- in both urban and more rural communities -- in order to maximise the public health benefits they may afford," Martin added.

For the findings, the research team examined the responses of more than 8,000 adults to questions about their health, where they lived and various other lifestyle factors.

Of the survey's respondents, just under one fifth (19 per cent) described themselves as current smokers while almost half (45 per cent) said they had regularly smoked at some point during their lives.

However, even after taking into account other factors known to influence smoking, people living in areas with a high proportion of green space were 20 per cent less likely to be current smokers than those in less green areas.

In addition, among the people who had smoked at some point during their lives, those living in greener neighbourhoods were up to 12 per cent more likely to have successfully quit smoking.

The authors suggest that improving access to green space may constitute an overlooked public health strategy for reducing smoking prevalence, especially given that smoking uptake and cessation are affected by stress.

Previous studies by the same team have shown that being able to see green spaces from your home is associated with reduced cravings for alcohol, cigarettes and unhealthy foods.

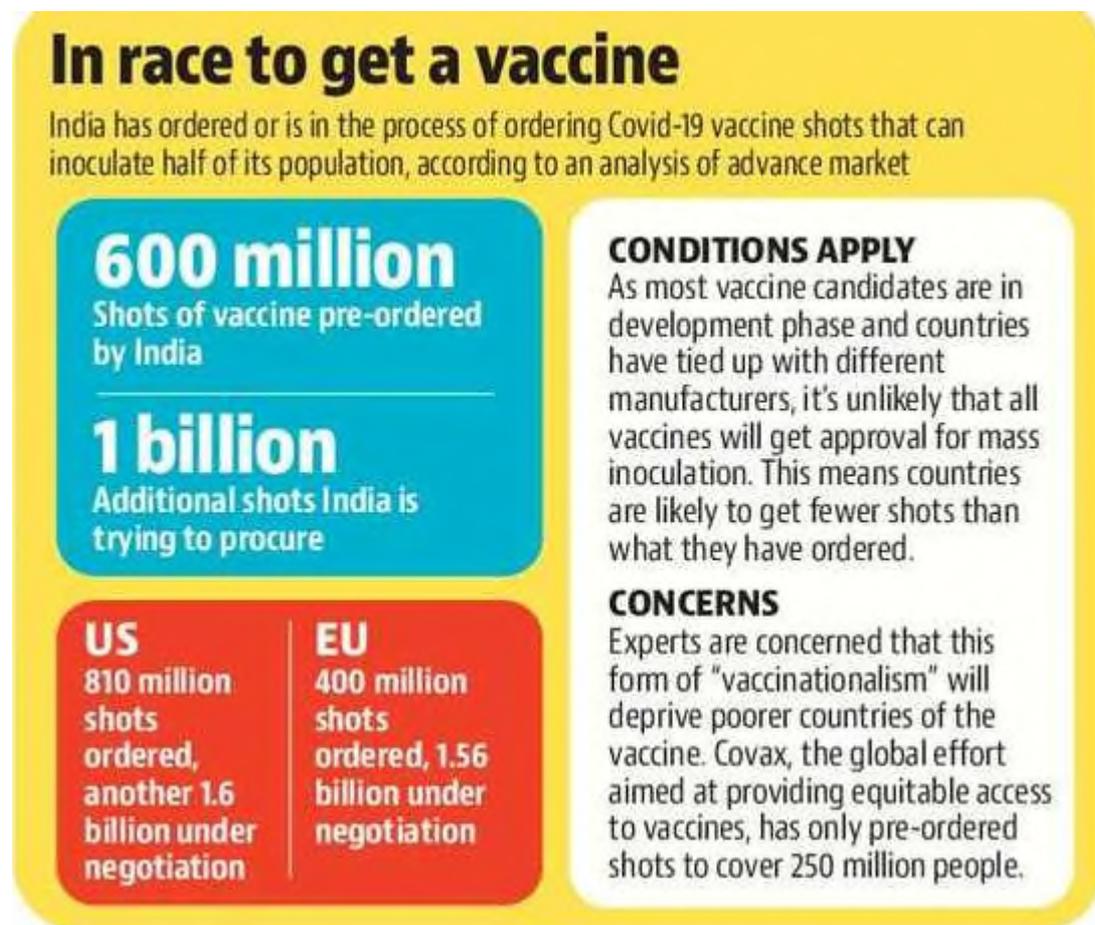
They have also demonstrated that individuals who visit natural spaces weekly, and feel psychologically connected to them, report better physical and mental wellbeing.

"If our findings are substantiated by further work, nature-based interventions could be prescribed to assist individuals attempting to give up smoking," the study authors wrote. — IANS

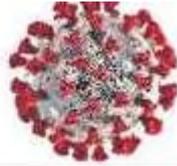
## Vaccines

**Global study sees India having edge in vaccines (Hindustan Times: 20201102)**

<https://epaper.hindustantimes.com/Home/ArticleView>



## Tracking the virus



### INDIA

|           |         |
|-----------|---------|
| CASES     | DEATHS  |
| 8,229,267 | 122,644 |
| (+46,066) | (+491)  |

### DELHI

|          |        |
|----------|--------|
| CASES    | DEATHS |
| 392,370  | 6,562  |
| (+5,664) | (+51)  |

### CASES LAST 5 DAYS



India data compiled by covid19india.org and cross-checked from inputs by HT's correspondents and news agencies

India has used its manufacturing capability to pre-order 600 million doses of the coronavirus disease (Covid-19) vaccine and is negotiating for another billion doses, enough to vaccinate at least half the population, according to a new global analysis of advance market commitments (AMCs) for experimental vaccines till October 8. Most experimental Covid-19 vaccines require two doses.

The figures are second only to the US, which has pre-ordered 810 million confirmed doses and has another 1.6 billion under negotiation.

It will likely take three to four years to manufacture enough vaccines to cover the world's population, but high-income countries and a few middle-income countries with manufacturing capacity such as India, have already purchased nearly 3.8 billion doses, with options for another five billion, showed an analysis of purchasing agreements for Covid-19 vaccines by the US-based Duke Global Health Innovation Center.

“In terms of numbers of confirmed doses, the USA has pre-ordered the largest number (810 million confirmed, another 1.6 billion doses under negotiation), followed by India (600 million doses confirmed, with another 1 billion doses under negotiation), and the EU (400 million doses confirmed, another 1.565 billion doses under negotiation). But in terms of percent of population covered by confirmed purchases, Canada has pre-purchased enough vaccine to cover 527% of their population, followed by the UK at 277% of their population,” said Andrea D Taylor, assistant director of programmes at the Duke Global Health Innovation Center, who led the analysis. “Of course, it is important to remember that most likely only some of the vaccine purchases will come through, depending on regulatory approval,” said Taylor.

“India is producing vaccines to protect the world against Covid-19, why shouldn’t it ensure its own citizens are protected as well? The government is committed to protecting the health of its citizens, so all measures have been taken to ensure we get adequate doses of the vaccines when they are available,” said a senior Union health ministry official, requesting anonymity.

Since none of the experimental vaccines yet have regulatory approval, countries are hedging bets by purchasing multiple candidates and some part of these doses may never materialise. The UK, for example, has made AMCs with five different vaccine candidates, using four different vaccine technologies.

Future agreements under discussion by the EU raise that number of vaccine doses to almost two billion, while the US, which has pre-ordered doses to cover 230% of its population, could eventually control 1.8 billion doses — about a quarter of the world’s near-term supply — according to the analysis.

This “vaccinationalism” will lead to some countries being able to vaccinate their entire populations — and some many times over — which is likely to deny low-resource regions, such as sub-Saharan Africa, access to Covid-19 protection until 2024.

Only enough doses to cover 250 million people have been confirmed as purchased thus far by Covax, a global effort involving both wealthy and poor countries that has promised equal access to Covid-19 vaccines globally. To meet its goal of vaccinating at least 20% of member countries, COVAX would need at least 1.14 billion doses of a single-dose vaccine and twice that amount for a two-dose regimen.

Covax signatories, which include the UK, the EU and Canada but not the US, are effectively undermining the pact by negotiating “side deals” for vaccines that will affect equitable access, said the study.

“An ambitious effort to create a global system of vaccine equity is being undermined as a handful of countries, including those who made a commitment to equality, secure as many doses as they possibly can,” said Elina Urli Hodges, MSPH, who leads the Launch and Scale Speedometer, an initiative that identifies impediments to delivering health innovations to low-income countries.

No low-income country has made a direct agreement to purchase, suggesting that they will be limited to the Covax pact to secure vaccines.

AMCs are being secured by countries through investment of large amounts of public funds into research and development of Covid-19 vaccines, national public and private vaccine development capacity, both public and private, and purchasing power and volume to make large-scale deals.

Other countries such as Brazil are also using their manufacturing capability to negotiate large AMCs with leading experimental vaccine candidates, while countries such as Peru are participating in phase 3 clinical trials to get leverage to negotiate AMCs, found the analysis, which used available evidence from public sources until October 8 combined with interviews with global and regional vaccine experts, as well as ministry of health officials in select countries.

“It is understandable that countries are acting in their national interest; they are incentivised to focus first on the safety of their populations. But globally, this will deepen existing inequities, and prolong the pandemic. Our research points to the need for countries and multilateral funders to unlock additional manufacturing capacity (particularly in the Global South) and invest in preparing countries for effective distribution of vaccines. High-income countries

should also work with COVAX, as a global coordinator, to ensure that, once their populations are covered, excess doses are redeployed where they are needed most around the world,” said Taylor, in an email.

## **India’s COVID-19 trajectory**

### **Signs of easing: On India’s COVID-19 fight (The Hindu: 20201102)**

<https://www.thehindu.com/opinion/editorial/signs-of-easing-the-hindu-editorial-on-indias-covid-19-trajectory-showing-a-downward-trend/article32998587.ece>

India’s COVID-19 trajectory shows a downward trend, but there is no room for complacency. After reporting over 97,650 novel coronavirus cases on September 11, the largest number ever reported on a single day by any country till then (the U.S. registered 99,780 cases on October 30), India has been witnessing a steady fall in daily fresh cases reported since mid-September. Since October 25, there have been fewer than 50,000 new cases every day, except on one. More importantly, the reduction in daily cases has continued despite no appreciable drop in overall testing numbers, a trend quite pronounced in States that bore the brunt of the pandemic — Maharashtra, Andhra Pradesh, and Tamil Nadu. It is quite clear that the pandemic has peaked by spreading through the major densely populated cities, leaving lakhs infected and thousands dead, but there is a definite slowing down in these areas. Since August, cases had already started to pile up beyond urban areas in rural districts. It is unclear whether the drop in daily cases and deaths registered in the urban areas is playing itself out similarly in rural areas as well, as unlike urban areas, the protocols for testing, treatment, isolation are not as diligently followed because of gaps in the rural health infrastructure across States. This is something State Health Departments need to follow up on.

## **COVID-19 infection**

### **Grocery store workers at heightened risk of COVID-19 infection, finds study (New Kerala: 20201102)**

<https://www.newkerala.com/news/2020/191591.htm>

Grocery store employees, especially those in customer-facing roles are five times as likely to test positive for COVID-19 as compared to their colleagues in other positions, suggests the first study of its kind.

The findings of the study were published in the journal *Occupational and Environmental Medicine*. What's more, among those testing positive, three out of four had no symptoms, suggesting these key workers could be an important reservoir of infection, say the researchers.

Published research focusing on essential/key workers has largely focused on healthcare workers. To try and plug this knowledge gap and find out how COVID-19 has affected the health and wellbeing of other key workers, the researchers studied 104 employees of one grocery store in Boston, Massachusetts.

Each employee was tested for SARS-CoV-2, the virus responsible for COVID-19 infection, in May this year as part of a mandatory testing policy across Boston.

But before doing so, they completed detailed questionnaires on their lifestyle; medical history; employment history; working patterns and role at the store; commuting to and from work; and the protective measures they were able to take against infection at work.

They were also asked to provide information on COVID-19, including any symptoms and exposure to anyone with confirmed SARS-CoV-2 over the past 14 days. Information on mental health was gleaned from two validated questionnaires for depression and anxiety PHQ-9 and GAD-7.

One in five (21 out of 104) workers tested positive for SARS-CoV-2, indicating a prevalence of 20 per cent at that point in time. This was significantly higher than the prevalence of the infection in the local community at the time 0.9-1.3 per cent.

Three out of four of those testing positive (76 per cent) had no symptoms. And of those testing positive, most (91 per cent) had a customer-facing role compared with 59 per cent of those testing negative.

Workers in customer-facing roles were five times more likely to test positive than their colleagues in other types of role, after accounting for potentially influential factors, such as the prevalence of SARS-CoV-2 where they lived. Those in supervisory roles were six times more likely to do so.

Ninety-nine employees filled in the mental health questionnaires 24 workers reported at least mild anxiety. Only half (46 per cent) of them said they were able to practice social distancing consistently at work, whereas most (76 per cent) of those who weren't anxious were able to do so.

Eight employees were deemed to be mildly depressed from their questionnaire answers. They were less likely to practice social distancing consistently at work and more likely to travel to and from work on public transport or shared rides compared with those who weren't depressed.

Those able to commute on foot, by bike or in their own car were 90 per cent less likely to report depressive symptoms.

This is a small observational study of workers in one store in one city at one point in time, which relied on subjective reports, and as such, can't establish cause, caution the researchers. Nevertheless, they say "This is the first study to demonstrate the significant

asymptomatic infection rate, exposure risks, and associated psychological distress of grocery retail essential workers during the pandemic."

And they point out "Once essential workers are infected with SARS-CoV-2, they may become a significant transmission source for the community they serve."

They believe their findings support "the policy recommendations that employers and government officials should take actions on implementing preventive strategies and administrative arrangements, such as methods to reduce interpersonal contact, repeat and routine SARS-CoV-2 employee testing, to ensure the health and safety of essential workers."

And they add "Our significant mental health finding calls for action in providing comprehensive employee assistance services to help essential workers cope with the psychological distress during the COVID-19 pandemic."

## **Pandemic**

### **Risky sexual behaviour rising despite pandemic lockdowns: Study (New Kerala: 20201102)**

<https://www.newkerala.com/news/2020/191271.htm>

The Covid-19 pandemic, despite lockdown and social distancing norms, did not inhibit risky sexual behaviours and researchers found that acute sexually transmitted infections (STIs) actually spiked during the lockdown period, along with increasing the risk of SARS-CoV-2 virus contagion.

The research, conducted in two main STI centres in Milan, Italy, found that despite the lockdown restrictions, diagnosis of STIs, including gonorrhoea, secondary syphilis and mycoplasma genitalium (MG) have increased.

"It was assumed that the lockdown would reduce the opportunity for sexual encounters and STIs. However, I was surprised by the number of new acute infections diagnosed in this short period of time," said Dr Marco Cusini from Policlinico di Milano hospital in Milano, Italy.

Gonorrhoea and syphilis are typically more prevalent in people in their 30s, so infection may have increased because the concentration of Covid-19 morbidity and mortality in the elderly made the younger, more active, cohort feel protected and so less risk averse.

"While it is unrealistic to prevent people from having sex, even in this extraordinary pandemic, close contact during sexual intercourse inevitably involves an increased risk of SARS-CoV-2 contagion," Cusini said.

The research compared the number of confirmed diagnoses of the most common STIs in patients with symptoms for the period March 15 to April 15, following social isolation measures (lockdown) adopted to control the epidemic, with the same period in 2019.

The results, presented at the 29th European Academy of Dermatology and Venereology virtual conference, revealed the number of acute bacterial infections increased during the observational period, including secondary syphilis and gonorrhoea.

"The findings show the importance of ongoing screening for STIs and the real benefit of having these types of services open and available during these unprecedented times," the authors wrote.

## **Cardio-metabolic health**

### **Sweetened beverages impact cardio-metabolic health, suggest study (New Kerala: 20201102)**

<https://www.newkerala.com/news/2020/191150.htm>

: Research has shown that diets including beverages sweetened with sugar can have a negative impact on cardio-metabolic health.

The results of the research were published in the Journal of the American College of Cardiology.

Artificially sweetened drinks have been suggested as a healthier alternative, but their impact on cardiovascular health is not fully known. In this paper, researchers looked at data from the French NutriNet-Sante cohort to investigate the relationship between the risk of cardiovascular disease and consuming sugary drinks and artificially sweetened drinks.

Records for 104,760 participants were included. They were asked to fill out three validated web-based 24-hour dietary records every six months. Artificially sweetened beverages were defined as those containing non-nutritive sweeteners. Sugary drinks consisted of all beverages containing 5 per cent or more sugar. For each beverage category, participants were divided into non-consumers, low consumers and high consumers.

Researchers looked at first incident cases of cardiovascular disease during follow-up from 2009-2019, which were defined as stroke, transient ischaemic attack, myocardial infarction, acute coronary syndrome and angioplasty. After excluding the first three years of follow-up to account for potential reverse causality bias, 1,379 participants had first incident cases of cardiovascular disease.

Compared to non-consumers, both higher consumers of sugary drinks and of artificially sweetened beverages had higher risks of first incident cardiovascular disease, after taking into account a wide range of confounding factors.

In addition to a higher risk of heart health issues, Eloi Chazelas, PhD student, lead author of the study and a member of the Nutritional Epidemiology Research Team (Sorbonne Paris Nord University, Inserm, Inrae, Cnam) said the study may have further regulatory implications.

"Our study suggests artificially sweetened beverages may not be a healthy substitute for sugar drinks, and these data provide additional arguments to fuel the current debate on taxes, labelling and regulation of sugary drinks and artificially sweetened beverages," Chazelas said.

Researchers said to establish a causal link between sugary and artificially sweetened beverages and cardiovascular disease, replication in large-scale prospective cohorts and mechanistic investigations will be needed.

## **Breast cancer tumours**

### **Scientists discover aggressive 'hot spots' inside breast cancer tumours New Kerala: 20201102)**

<https://www.newkerala.com/news/2020/190900.htm>

By using a novel technique, researchers have found tiny and previously undetectable 'hot spots' of extremely high stiffness inside breast cancer tumours. A team of McGill University researchers has found these 'hot spots' inside aggressive and invasive breast cancer tumours.

Their findings suggest, for the first time, that only very tiny regions of a tumour need to stiffen for metastasis to take place. Though still in its infancy, the researchers believe that their technique may prove useful in detecting and mapping the progression of aggressive cancers.

"We are now able to see these features because our approach allows us to take measurements within living, intact, 3D tissues," said Chris Moraes, from the University's Department of Chemical Engineering, a Canada Research Chair and senior author on a recent research paper in Nature Communications. "When tissue samples are disrupted in any way, as is normally required with standard techniques, signs of these 'hot spots' are eliminated."

'Smart' hydrogels provide information about cancer progression

The researchers built tiny hydrogel sensors that can expand on demand, much like inflating balloons the size of individual cells and placed them inside 3D cultures and mouse models of breast cancer. When triggered, the expansion of the hydrogel can be used to measure very local stiffness inside the tumour. This unusual technique, developed through a collaboration between McGill's Department of Chemical Engineering and the Rosalind and Morris Goodman Cancer Research Centre at McGill, allows the researchers to sense, from the perspective of a cancer cell, what is going on in their surrounding environment.

What cells sense drives their behaviour

"Human cells are not static. They grab and pull on the tissue around them, checking out how rigid or soft their surroundings are. What cells feel around them typically drives their behaviour immune cells can activate, stem cells can become specialized, and cancer cells can become dangerously aggressive," explained Moraes. "Breast cancer cells usually feel surroundings that are quite soft. However, we found that cancer cells inside aggressive tumours experienced much harder surroundings than previously expected, as hard as really old and dried up gummy bears."

The researchers believe that their findings suggest new ways in which cell mechanics, even at the early stages of breast cancer, might affect disease progression.

"Developing methods to analyze the mechanical profiles in 3D tissues may better predict patient risk and outcome," said Stephanie Mok, the first author on the paper and a PhD candidate in the Department of Chemical Engineering. "Whether these 'hot spots' of stiffness are really causing cancer progression rather than simply being correlated with it remains an open, but critically important question to resolve."

## **Dengue (Hindustan: 20201102)**

[https://epaper.livehindustan.com/imageview\\_422725\\_137416704\\_4\\_1\\_02-11-2020\\_4\\_i\\_1\\_sf.html](https://epaper.livehindustan.com/imageview_422725_137416704_4_1_02-11-2020_4_i_1_sf.html)

# दिल्लीवालों ने मिलकर डेंगू को हराया : सीएम

नई दिल्ली | वरिष्ठ संवाददाता

मुख्यमंत्री अरविंद केजरीवाल ने '10 हफ्ते, 10 बजे, 10 मिनट' डेंगू विरोधी अभियान के 9वें सप्ताह में दिल्ली वालों से अभियान से जुड़ने की अपील की। साथ ही कहा कि इस अभियान के जरिये दिल्ली वालों ने डेंगू को हरा दिया है।

मुख्यमंत्री ने रविवार सुबह एक बार फिर अपने आवास का निरीक्षण किया और जमा पानी को बदला। दिल्ली सरकार के आक्रामक अभियान के कारण इस साल दिल्ली में डेंगू से संबंधित एक भी मौत नहीं हुई है। दिल्ली वालों से अभियान से जुड़ने की अपील करते हुए केजरीवाल ने कहा कि दिल्ली ने इस साल फिर डेंगू को हरा दिया है।



दिल्ली में इस साल डेंगू के मामले और भी कम हुए और एक भी मौत नहीं हुई है। केजरीवाल ने ट्वीट कर कहा, "डेंगू के खिलाफ चल रही लड़ाई का आज 9वां रविवार है और आज मैंने फिर से अपने घर में इकट्ठा हुए पानी को बदला। दिल्ली में इस साल डेंगू के मामले कम हुए। उन्होंने कहा कि अभियान की मदद से दिल्ली ने फिर डेंगू को हरा दिया है।"